Global Threat Reduction Initiative: U.S. Nuclear Remove Program

Foreign Research Reactor Spent Nuclear Fuel (FRR SNF) Acceptance

2007 DOE TEC Meeting

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U.S. Nuclear Remove Program Objective

- To play a key role in the Global Threat Reduction Remove Program supporting permanent threat reduction by accepting program eligible material.

- Works in conjunction with the Global Threat Reduction Convert Program to accept program eligible material as an incentive to core conversion providing a disposition path for HEU and LEU during the life of the Acceptance Program.

Reasons for the Policy

- Reduce the threat of nuclear weapons proliferation while enjoying the benefits of nuclear technology.
- Reduce, and eventually eliminate, high enriched uranium (HEU) from worldwide commerce.
- Allow time for the countries with spent fuel (both high and low enriched) to resolve their own disposition.

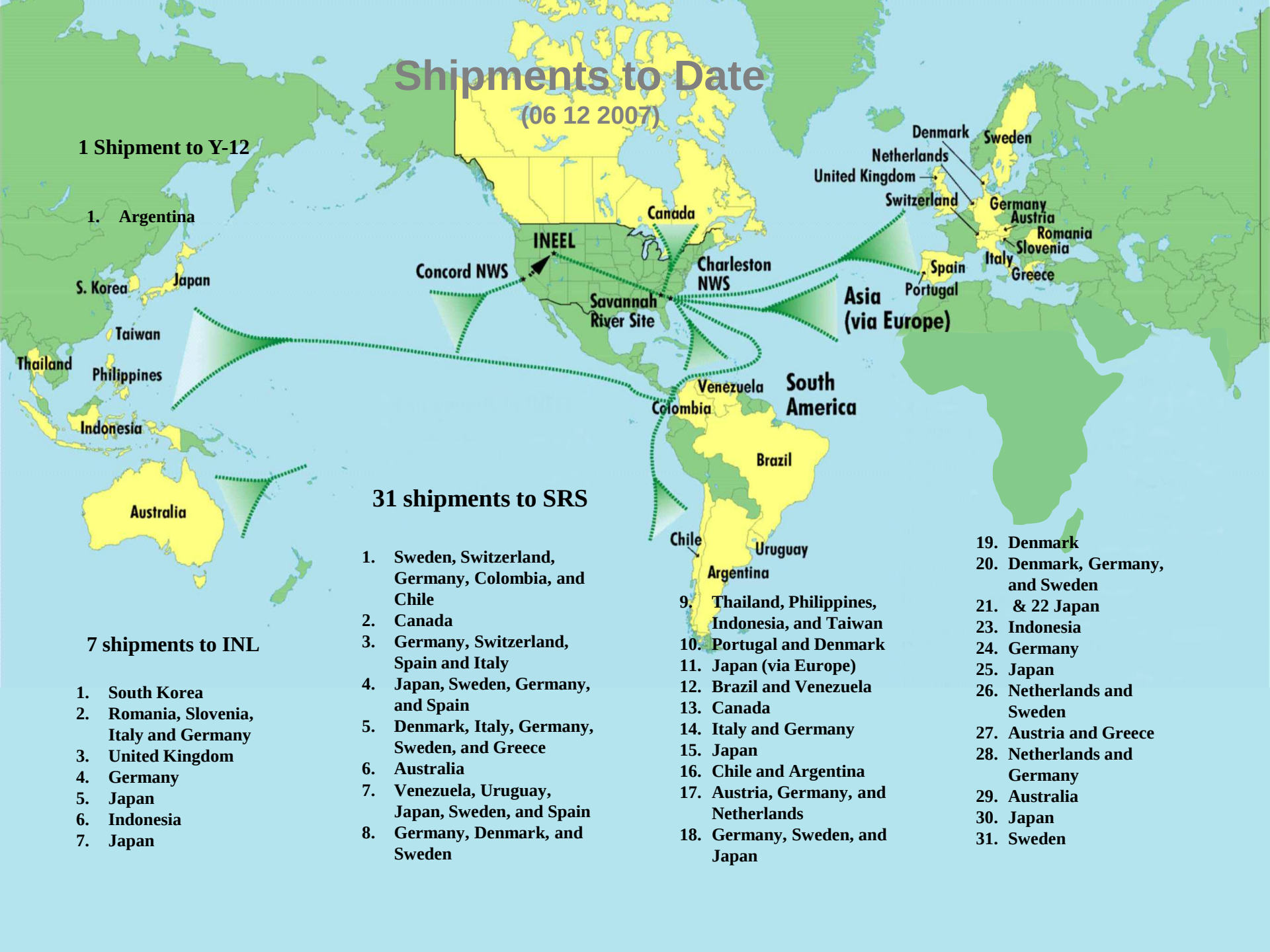
Total Shipments

To date:

- 39 shipments completed
- 7,992 spent fuel assemblies, from 28 countries, have been accepted to date
- 7 cross-country shipments completed, one west coast shipment completed
- 213 casks/6,610 assemblies to SRS;
  17 casks/1,358 rods to INL
  9 casks/24 assemblies to Y-12

Shipments to Date

(06 12 2007)



1 Shipment to Y-12

1. Argentina

7 shipments to INL

1. South Korea
2. Romania, Slovenia, Italy and Germany
3. United Kingdom
4. Germany
5. Japan
6. Indonesia
7. Japan

31 shipments to SRS

1. Sweden, Switzerland, Germany, Colombia, and Chile
2. Canada
3. Germany, Switzerland, Spain and Italy
4. Japan, Sweden, Germany, and Spain
5. Denmark, Italy, Germany, Sweden, and Greece
6. Australia
7. Venezuela, Uruguay, Japan, Sweden, and Spain
8. Germany, Denmark, and Sweden
9. Thailand, Philippines, Indonesia, and Taiwan
10. Portugal and Denmark
11. Japan (via Europe)
12. Brazil and Venezuela
13. Canada
14. Italy and Germany
15. Japan
16. Chile and Argentina
17. Austria, Germany, and Netherlands
18. Germany, Sweden, and Japan
19. Denmark
20. Denmark, Germany, and Sweden
21. & 22 Japan
23. Indonesia
24. Germany
25. Japan
26. Netherlands and Sweden
27. Austria and Greece
28. Netherlands and Germany
29. Australia
30. Japan
31. Sweden

Shipment Activities

- Ocean Transport to Naval Weapons Station – Charleston
- Transfer from Ship to Truck or Rail by Crane
  - EIS preference for rail shipments with option for truck
  - Use trucks for 4 casks or less due to cost and security capabilities
- Crane Operation
  - Require ISO Containers for consistent rigging equipment
  - Cask weight maximum is 63,000#
  - Never cross one load over another
  - Crane certified and load tested
  - Backup crane capability

Operational Logistics

- Coordination with states
  - Security (SLED)
  - Emergency Management (State Dept of Emerg Mgmt)
  - Environment (State DHEC)
- TRANSCOM tracking
- Radiological monitoring
- CVSA Level VI Inspection
- Coordination tele-conference and meeting prior to intermodal transfer operations and shipment
- Intermodal transfer site and operations

Security Management

- Security Escorts – FRR Exceeds requirements inside SC
- Port Security maintained by:
  - DHS-USCG
    - Escorts
    - Publishes Security and Safety Zone during transit and unloading
  - NWSC at the port (land and waters)
  - SC State Law Enforcement Division (SLED)
  - LLAs
- Transit Security maintained by:
  - SLED (Lead Agency)
  - Highway Patrol
  - State Dept of Natural Resources
  - RR Police (when using rail)
  - State Transport Police
  - LLAs

State Emergency and Environmental Monitoring

- State Emergency Management involved in planning meetings and monitors movement in the state.
- State DHEC involved in planning meetings, monitors movement, conducts "change in mode of transport" rad surveys, & shadows the shipment in the state.
  - Note: DOE conducts the formal rad survey. DHEC and NRC (when desired) validates survey

TRANSCOM Tracking

- Uses DOE-EM TRANSCOM for both ocean and US territory land movement
- Access provided to State(s), DOE site EOCs, DOE-HQ EOC, and others on an as-needed basis
- Coordinated between ocean to land transport.

Radiological Monitoring

- Surveys coordinated with the point of origin and receiving facility prior to commencement of transport.
- Shipment container exterior surveyed at the intermodal transfer point by DOE survey team, DHEC, STP (when truck) and NRC (if desired).
- Shipment container exterior surveyed at the receiving facility immediately upon arrival.
- Other surveys are performed during cask unloading as part of the facility's unloading procedures.

CVSA Inspections

- Level VI Commercial Vehicle Safety Alliance (CVSA) inspection completed on tractor-trailer prior to truck shipment.
- Pre-inspection conducted one day prior to arrival of ocean shipment.
- Final inspection completed upon cargo loading.

Intermodal Transfer Coordination Meetings

- An intermodal transfer coordination tele-conference is held prior to shipment arrival at the port.
  - This meeting was initially a physical meeting
  - Quickly shifted to a tele-conference
- An inter-modal transfer coordination meeting is held immediately prior to transfer operations at the port.

Intermodal Transfer Site & Operations

- Intermodal transfer pre-meetings
- Security barrier
- Access control
- Key personnel and organizations involved/present early during the transfer operation
- Special evolution contact list
- Procedures and checklists
- Timelines

Lessons Learned

- Intermodal transfer and shipment tele-conference and meeting are helpful.
- Early inspection of Trucks/Railcars.
- Receiving Site review Rad. Surveys
- Personnel and equipment access and inspections to Plant & DOE facility (contraband, etc)
- TRANSCOM operator reports when start & stop
- Facility Access advance information
- Rail Transport Coordination
- Backup Crane never used
- DOT/FRA and other key personnel early participation

Conclusion

- 239 spent nuclear fuel casks in 39 shipments with no serious incidents
- GTRI values our relationships with the reactor operators and other stakeholders.
- Safe, Secure, Reliable!

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